Before the
Federal Communications Commission
Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements	)	IB Docket No. 99-67
	)	
Petition of the National Telecommunications And Information Administration to Amend Part 25 of the Commission's Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band	)	RM-9165

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COMMENTS

Constellation Communications, Inc. ("Constellation"), by its attorneys, hereby submits these comments in response to the Commission's Notice of Proposed Rule Making in the above-referenced proceeding.[1] In the Notice, the Commission proposes to amend its rules to facilitate the free circulation of portable telecommunications terminals used in connection with satellite systems providing global data, voice, Internet and other broadband services by implementing the international Global Mobile Personal Communications by Satellite ("GMPCS") Memorandum of Understanding ("GMPCS-MoU"). In addition, the Commission is proposing to adopt more stringent limits on the out-of-band emissions produced by Mobile Satellite Service ("MSS") terminals transmitting in the 1610-1660.5 MHz band to protect the operations of aeronautical

[1] *Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements*, IB Docket No. 99-67, *Notice of Proposed Rule Making* (Mar. 5, 1999) ("*Notice*").

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Radionavigation Satellite Service ("RNSS") receivers operating in the 1559-1605 MHz band. Constellation addresses these proposals herein.

Constellation holds a license[2] to construct a 1.6/2.4 GHz MSS system. Because subscriber terminals operating with the Constellation system may be covered by the GMPCS-MoU, Constellation has a significant interest in this proceeding and in the efficient implementation of the GMPCS-MoU. Constellation supports the objective of the GMPCS-MoU to provide a framework for the introduction of GMPCS by: (1) authorizing users to bring a terminal into a visited country and to use it subject to the visited country's regulatory requirements (i.e. without the need for an authorization for the terminal in the visited country); (2) authorizing users to carry a terminal into a visited country but not to use it; and (3) establishing the technical conditions for marketing terminals.

Notwithstanding its support for these themes underlying the Notice, Constellation suggests herein several clarifications to the specific rule changes the Commission has proposed.[3] With respect to the out-of-band emission limits in the proposed new Section 25.216, Constellation requests that the Commission recognize the stringent nature of this rule and retain the flexibility to extend the less stringent interim limits if they prove sufficient to protect aeronautical RNSS receivers. Finally, with respect to the Commission's questions relating to the imposition of E911 obligations on MSS systems, Constellation believes that it is premature to do so.

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2 *Constellation Communications, Inc.*, DA 97-1366 (July 1, 1997).

3 Constellation's proposed modifications to the draft rules are set out in Appendix A.

I. The Commission's Equipment Certification Requirements Should be Limited to Earth Terminals That Are Intended To Bear The GMPCS-MoU ITU Registry Mark

Constellation does not believe that this proceeding is the appropriate forum for extending equipment certification requirements to all types of satellite communications earth terminals.[4] As the Commission recognizes in its *Notice*, equipment certification is not normally required for earth terminals licensed under Part 25 of the Rules.[5] Historically, earth stations have had complex designs and have been assembled from multiple subsystems provided by different manufacturers. In the case of feeder link earth stations for GMPCS satellite systems, complex earth station architectures have to be developed that are unique to each system. The Commission's current technical standards and earth station licensing procedures are working satisfactorily in preventing harmful interference. Consequently, Constellation believes that there is no basis for the Commission to impose an equipment certification requirement on all varieties of earth terminals. Instead, any equipment certification requirements adopted in this proceeding should be limited to the minimum necessary to implement the GMPCS-MoU.

Constellation agrees with the Commission's proposal that certain types of terminals operating with GMPCS satellite systems, such as mobile terminals permanently installed on ships, boats or planes, and grandfathered existing terminals, be exempted from the equipment certification requirement.[6] Constellation believes that such an exemption should be extended to other types of user terminals operating with GMPCS systems, such as terminals used to provide basic telephone service to remote areas, if free circulation for such terminals under the

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4 *See Notice* at ¶ 20.

5 *Id.* at ¶ 19.

6 *See Id.* at ¶ 24

GMPCS-MoU is not desired.[7] The Commission's existing blanket licensing procedures are sufficient to insure that such terminals satisfy the technical requirements specified in the Commission's rules to prevent harmful interference. In addition, the site specific licenses issued for individual fixed earth stations, such as feeder link earth stations in GMPCS systems, provide an adequate means for reviewing the potential of such facilities to cause harmful interference. Thus, there is no need to require equipment certification in addition to the technical review conducted in the course of issuing radio station licenses for such facilities that are not intended to carry the "GMPCS-MoU ITU Registry" mark.[8]

Instead, the Commission should limit any new equipment certification requirements to earth terminals for which the GMPCS-MoU ITU Registry mark is being sought in order to permit free circulation of the terminals across national borders. In such cases, the equipment certification process should serve as a replacement for any technical review of the characteristics of the terminals in the context of processing the blanket license issued to the service provider responsible for the terminals.

II. The Commission Should Clarify The Scope Of Its Proposed GMPCS-MOU Implementation Procedures In The New Section 25.215

Constellation is concerned that the proposed text of Section 25.215 may be unnecessarily broad in that it potentially includes a wider range of equipment within the equipment certification requirement than the Commission intends. Moreover, the text does not expressly include some of the exemptions from equipment certification requirements contemplated by the Commission.

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7 *Id.* at ¶ 24.

8 After it is certified by an administration, a terminal may be registered at the International Telecommunication Union and subsequently labeled with an international symbol. *Notice* at ¶ 3.

Part of the difficulty arises from the broad definition of a GMPCS system, which is defined as "any satellite system, (i.e., fixed or mobile, broadband or narrow-band, global or regional, geostationary or non-geostationary, existing or planned) providing telecommunication services directly to end users from a constellation of satellites."[9] Moreover, Section 25.215 fails to take into account the wide range of terminal types that might operate in any particular GMPCS system and the expectation that differing treatment may be afforded to different types of terminals operating within a GMPCS system. In its broadest reading, Section 25.215 can be construed as applying to virtually every satellite communications earth terminal. Constellation does not believe that is the intent of the Commission.

Section 25.215 should provide clear guidance as to which systems and terminals are included under the provisions of this section. For example, the Commission proposes to exempt terminals permanently installed in ships, boats or planes, and to grandfather terminals already in operation. Constellation supports such exemptions from the equipment certification requirement. Constellation believes that similar treatment should be afforded to terminals used at fixed locations, including payphone installations in remote areas, for which there is no intent to apply the GMPCS-MoU ITU Registry mark. Similarly, Section 25.215 should not apply to feeder link earth terminals operating in MSS GMPCS systems. On the other hand, if the GMPCS-MoU arrangements prove to be very successful, interest may arise in obtaining authority to affix the GMPCS-MoU ITU Registry mark to vehicle-installed terminals if this would assist their free circulation.

As recognized by the Commission, the GMPCS-MoU is a voluntary arrangement whose purpose is to encourage the free circulation of personal satellite terminals which display

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[9] Proposed Section 25.215(a)(1).

the GMPCS-MoU ITU Registry mark. For this reason, and to avoid any confusion that might arise from the current broad wording of Section 25.215, Constellation proposes that the Commission add a definition of "GMPCS terminal" to the new rules. Constellation recommends that a GMPCS terminal be defined as "an earth station that has been authorized to carry the GMPCS-MoU ITU Registry mark, or for which such authority is being requested." By doing so, it is clear that the new procedures and obligations are applicable only to those terminals for which the benefits of the GMPCS-MoU ITU Registry mark are being sought and that no other earth terminals are affected by these new regulations.

In addition, Constellation believes that the Commission should not mandate that any particular type of terminal automatically be required to comply with the ITU GMPCS-MoU registry procedures. Rather, such procedures should be limited to those terminals for which the manufacturer and/or operator voluntarily seeks the ITU GMPCS-MoU mark in order to encourage free circulation of that equipment. Such an approach would also eliminate the need for the Commission to expend its resources in making fine distinctions between various types of terminals that might be operating within a GMPCS system, some of which would bear the GMPCS-MoU ITU Registry mark and some of which would not.

A case-by-case approach is needed in the developing the technical requirements to be applied in each satellite service for making user terminals eligible for the proposed GMPCS-MoU procedures. Constellation has no objection in principle to applying the provisions of the GMPCS-MoU to any type of satellite system providing service to personal subscriber terminals. Because of the different technical standards that apply to each of the various satellite services covered by Part 25, Constellation believes that the Commission should explicitly list in Section 25.215 the particular satellite services in which user terminals are eligible for inclusion

under the GMPCS-MoU procedures and the specific technical standards that are applicable to them in the equipment certification process.

At the present time, Constellation believes that an adequate record has been established in the *Notice* to include earth terminals in the Non-Voice, Non-Geostationary MSS, the 1.6/2.4 GHz MSS and the 1545-1559/1646.5-1660.5 MHz MSS. If the Commission wishes to include in its GMPCS-MoU implementation procedures terminal types other than the MSS terminals presently covered by the technical standards of Part 25, e.g. VSAT terminals, it should explicitly identify the specific types of terminals to be covered by the GMPCS-MoU procedures and the specific technical standards with which those terminals must comply to be eligible for such treatment.

III. The Commission Should Not Require the GMPCS-MoU ITU Registry Mark As A Condition For Bringing MSS Terminal Equipment Into The Country For Operation Under A Blanket License Issued To A United States Service Provider

Constellation agrees that the Commission should encourage the voluntary implementation of the GMPCS-MoU to permit free circulation of GMPCS-MoU terminals across national borders. Constellation therefore supports the Commission's proposals to inform the United States Customs Service about the new "GMPCS-MoU ITU Registry" mark and the registration process at the ITU and to develop a list of "approved" GMPCS terminals that will be posted to a shared Customs-Commission database on a real-time basis.[10]

Constellation believes that the objective of the proposed Section 25.215 should be to provide a well-defined and efficient administrative mechanism for system operators and equipment manufacturers to take advantage of the GMPCS-MoU on a voluntary basis. Thus, Constellation supports the Commission's proposal to permit terminals that have not been

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[10] *See Notice* at ¶¶ 37-41.

certified by the Commission to operate in the United States, without further Commission approval, provided they bear the GMPCS-MoU ITU Registry mark and are operated in a manner that is consistent with the authorization granted to the licensed GMPCS service provider with which they are communicating. Constellation also supports the Commission's proposal to develop a list of GMPCS terminals originating from abroad that have been certified to standards consistent with those in the Commission's rules and that have been approved by the operator for use with an authorized system in the United States.

However, while the appearance of the GMPCS-MoU ITU Registry mark should be construed as permission to bring the terminal into the United States for domestic use, the absence of such a mark should not prohibit the transit of such equipment or the use of MSS terminals within the United States under the terms and conditions of a blanket license issued for that class of terminal in accordance with Part 25. The GMPCS-MoU is a voluntary procedure, and the Commission recognizes in its *Notice* that certain terminals operating within a GMPCS system may not carry the GMPCS-MoU ITU Registry mark because they are grandfathered under an interim procedure or they may fall under certain categories, such as fixed or vehicle installed. MSS terminals not carrying the GMPCS-MoU ITU Registry mark should be permitted into the country for operation under a blanket license issued by the Commission to a GMPCS service provider. The new Section 25.215 should be limited to specifying the procedures to be followed to obtain the GMPCS-MoU ITU Registry mark through the Commission, as the participating administration for the United States, including the privileges resulting from the successful completion of these procedures. For all other terminals, the current rules should be retained, including those relating to the importation of equipment into the United States.

The Commission also requests comment on how its proposed GMPCS rules should address the unique case of dual-mode cellular/GMPCS terminals where the terrestrial component cannot be certified to a standard common to the United States. The terrestrial component of such a dual mode satellite terminal will typically be an integral component of the satellite terminal or a plug-in module that cannot operate independently of the satellite portion of the terminal. In such cases, Constellation believes that dual-mode (or even multi-mode) GMPCS-MoU terminals should be permitted into the country and proposes a minor change to the new Section 2.1204(a)(9) to accomplish this goal.

IV. The Commission Should Simplify Its Blanket Licensing Approach For GMPCS-MoU Terminals

The Commission proposes to continue to issue blanket licenses, in addition to the equipment certification process, for GMPCS terminals used for domestic service and does not intend to merge its licensing and certification collection procedures. Constellation supports this approach and believes that the current blanket licensing procedures, instead of equipment certification, should be retained for licensing subscriber earth terminals for which the GMPCS-MoU ITU Registry mark is not being sought.

However, Constellation does believe that the blanket licensing of terminals bearing the GMPCS-MoU ITU Registry mark should be streamlined in light of the technical review of terminals provided by the equipment certification procedure. In this case, the blanket license application process should be a *pro forma* one that simply identifies the licensee as being authorized to resell service over a particular GMPCS system using any type of terminal that carries the ITU GMPCS-MoU mark and has been approved by the GMPCS-MoU system operator for access to its system. Such licenses should not impose any limit on the numbers or types of terminals covered by the blanket license as long as the terminals carry the GMPCS-

MoU ITU Registry mark. Applications for such blanket licenses should be routinely granted without any technical review to any entity authorized by a GMPCS-MoU system operator to resell service over the system.

With respect to the adequacy of the current technical standards in Part 25,[11] Constellation does not believe that any additional technical standards are necessary to prevent harmful interference between systems beyond those proposed by the Commission.

In addition, the Commission rules should clearly state the specific technical requirements for obtaining equipment certification. The proposed rule text may cause confusion in the application of the equipment certification requirements if it does not identify which technical requirements are to be reviewed in the course of the equipment certification process. In particular, the provision of Section 25.215(b)(2) that the equipment must meet *all* the requirements of this part to be certified appears to be vague in the context of identifying the technical information to be included in the equipment certification filing. The specific requirements to be reviewed in the equipment certification process should therefore be clearly identified in Part 25 of the Rules.

Also, the reference in Section 25.215(b)(3) to Section 24.52, which is in a rule part dealing with terrestrial mobile services, should be replaced with direct reference to applicable sections of Parts 1 and 2. Section 24.52 by itself does not add any substance to Section 25.215, but is only a cross-reference to the substantive rule sections in Parts 1 and 2 of the rules dealing with radiation hazards that are to be applied to the GMPCS-MoU terminals. Constellation believes that a direct reference in Section 25.215 to the substantive sections of Parts 1 and 2 will

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11 *See Notice* at ¶ 34.

be more useful to Part 25 licensees than an indirect cross-reference through an unrelated rule part.

The GMPCS MoU includes a provision concerning whether and to what extent caller traffic data associated with GMPCS terminals can be released to national authorities upon request. The final Arrangements include a set of guidelines with general requirements for the release of traffic data to administrations and competent authorities, consistent with national regulations and specific bilateral agreements between regulators and system operators.[12] The Commission's rules provide for submission of traffic data and other reporting requirements based on the type of service provided. For example, Constellation has to comply with the reporting requirements in Section 25.143(e) concerning system status, outages, and transponder capacity utilization.

The Commission recognizes the potentially conflicting concerns regarding national security and the need to protect the sensitive and proprietary nature of traffic data. Balancing these concerns, however, is best left to specific regulation in this area through individual service agreements developed between regulators and GMPCS companies. Constellation agrees with the Commission and supports its proposal not to require any specific traffic data filings to the Commission from GMPCS operators or service providers.

V. The Commission Should Recognize That The Proposed Out-Of-Band Emission Limits Are Extraordinarily Stringent And Should Retain Authority To Relax Them In The Future If Radionavigation Satellite Service Receivers Do Not Require Such Stringent Protection

The Commission is proposing to replace the current requirements of Section 25.213(b) to protect the GPS C/A signal at 1575 MHz with a new requirement to protect all radionavigation satellite signals within the 1559-1605 MHz band from out-of-band emissions

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12 Arrangements, Section VI (C), p. 6.

above –70 dBW/MHz e.i.r.p. This new requirement requires 30 to 40 dB more suppression of out-of-band emissions at 1605 MHz than the current rule requirements specified in Section 25.202(f) for MSS transmitters operating in the 1610-1626.5 MHz band.

The Commission should recognize that the –70 dBW/MHz limit on out-of-band emissions in the current Section 25.213(b) was agreed to during the 1993 negotiated rulemaking proceedings in CC Docket No. 92-166 only for the purpose of protecting GPS signals at 1575 MHz under an extremely conservative interference scenario. By reducing the frequency separation of 35 MHz between the edge of the MSS band at 1610 MHz and GPS at 1575 MHz to only 5 MHz to protect Glonass at 1605 MHz, the Commission is imposing a significant additional burden on the design, cost and complexity of MSS user terminals.

The Commission recognized this impact to some degree in terms of the phased-in nature of the out-of-band emission limits. The Commission should return flexibility to consider requests to extend the implementation dates of the more stringent limits, or relax them if operating experience or better GPS receiver designs demonstrate that the objectives of protecting aeronautical GPS receivers can be satisfied without imposing the more stringent out-of-band emission limits on MSS transmitters. In any event, the Commission should recognize the extraordinary aeronautical safety considerations on which these stringent out-of-band emission limits are based and the impact they will have on MSS user terminals. The Commission should also conclude that no further limitations on MSS out-of-band emissions will be considered by the Commission in order to protect any other application of the radionavigation satellite service operating in the 1559-1610 MHz band.

VI. The Commission Should Not Impose E911 Obligations On MSS Operators At This Time

The Commission seeks comment on whether the Commission should prospectively require GMPCS systems to implement their systems with enhanced 9-1-1 ("E911") capabilities in light of technological developments in the MSS industry, and on appropriate transition measures to ensure that any new requirement does not adversely affect systems at an advanced stage of design or deployment.

Constellation notes that Section 25.143(f) of the rules addresses safety and distress communications over its system, and that Section 25.213(a)(1) requires internal or external position determination capabilities in 1.6/2.4 GHz MSS subscriber terminals to protect radio astronomy sites. However, no requirements are specified for a minimum position accuracy and "coarse" position determination algorithms developed for regulatory compliance purposes are unlikely to provide the accuracy required for E911 service.

One of Constellation's basic concerns in implementing additional emergency services in its system, such as E911 capabilities, is how to efficiently and accurately identify the proper authority to which to route the emergency call. In addition, it is necessary to limit Constellation's liability and involvement in the provision of such emergency services, as a satellite system operator, once the call is routed to the designated agency.

Constellation believes that the record is insufficient to justify imposing E911 obligations on MSS operators within the United States. It should be recognized that, unlike a cellular system in which E911 capabilities can be applied on a cell-by-cell or local jurisdictional basis, Constellation's MSS system will cover the entire country, including large unpopulated areas where there may not be a designated agency to respond to emergency calls. If an MSS system is to offer E911 service to its customers, the operator will have to know where to route

the call for every point within the country. A commercial MSS operator can not be left with the liability of determining how to process an emergency E911 call other than routing it to a predetermined agency responsible for actually responding to the call. However, it does not appear that the relevant safety authorities have developed a nationwide plan to insure that there is a responsible agency for every point within the country, or a method for recovering the costs of a satellite provided service on a national basis.

The situation will be more complicated for a global MSS system such as Constellation's, which serve multiple countries. Moreover, a single feeder link earth station in the Constellation system may serve several small but neighboring countries with different levels of emergency response capabilities. A premature imposition of E911 obligations on MSS systems in the United States may encourage other countries to impose similar requirements before an adequate emergency response infrastructure is available in each country.

Low earth orbiting MSS systems are capable of providing "coarse" position determination using Doppler and time difference ranging techniques. However, due to the architecture of the satellite constellation and the frequency accuracy and stability of the oscillators in the subscriber terminals, the accuracy of such internal means of position determination is on the order of several (e.g. 10) kilometers. Inclusion of GPS receivers in MSS user terminals can result in a position determination accuracy on the order of 100 meters. However, the inclusion of GPS capabilities increases the cost of the user terminal, may require the addition of a GPS receiving antenna or complicate the design of an L-band transmit/receive antenna, and substantially reduce the battery life of a user terminal. As a result, providing position information to the 125 meter accuracy required for terrestrial services is not possible without substantially compromising the cost and battery lifetime of MSS terminals.

Constellation does not believe it is appropriate for the Commission to consider imposing E911 obligations on MSS systems in this proceeding intended to adopt rules to implement the GMPCS-MoU Arrangements. Emergency service capabilities are not a requirement to obtain approval to affix the GMPCS-MoU ITU Registry mark to an MSS user terminal. Moreover, the nature of any emergency services provided to users of an MSS system have to be consistent with the inherent technical capabilities of such systems, and a simple extension of the current E911 requirements on terrestrial mobile systems is not appropriate in light of the these technology differences and the broader coverage areas of satellite systems. Any further consideration of this matter should therefore be deferred to a different proceeding in the future after sufficient experience has been gained with operational MSS systems and a nationwide infrastructure of public safety answering points and cost recovery mechanism has been developed.

VII. Conclusion

Constellation supports the Commission's efforts to modify its rules to implement the ITU GMPCS-MoU. However, as discussed above, Constellation requests the Commission to make some changes in the rules to be adopted as set forth in the attached Appendix in order to eliminate ambiguities in the application of the rules and improve the efficiency the regulations governing GMPCS-MoU user terminals. Constellation also requests the Commission to retain the flexibility to extend the interim out-of-band emission limits if they prove sufficient to provide adequate protection of aeronautical RNSS receivers. Finally, Constellation believes that it is premature to impose E911 obligations on GMPCS-MoU system operators at this time.

Respectfully submitted,

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